Least Squares Data Fitting with Applications

As one of the classical statistical regression techniques, and often the first to be taught to new students, least squares fitting can be a very effective tool in data analysis. Given measured data, we establish a relationship between independent and dependent variables so that we can use the data predictively. The main concern of Least Squares Data Fitting with Applications is how to do this on a computer with efficient and robust computational methods for linear and nonlinear relationships. The presentation also establishes a link between the statistical setting and the computational issues.

In a number of applications, the accuracy and efficiency of the least squares fit is central, and Per Christian Hansen, Víctor Pereyra, and Godela Scherer survey modern computational methods and illustrate them in fields ranging from engineering and environmental sciences to geophysics. Anyone working with problems of linear and nonlinear least squares fitting will find this book invaluable as a hands-on guide, with accessible text and carefully explained problems.

Included are
- an overview of computational methods together with their properties and advantages
- topics from statistical regression analysis that help readers to understand and evaluate the computed solutions
- many examples that illustrate the techniques and algorithms

Least Squares Data Fitting with Applications can be used as a textbook for advanced undergraduate or graduate courses and professionals in the sciences and in engineering.

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